

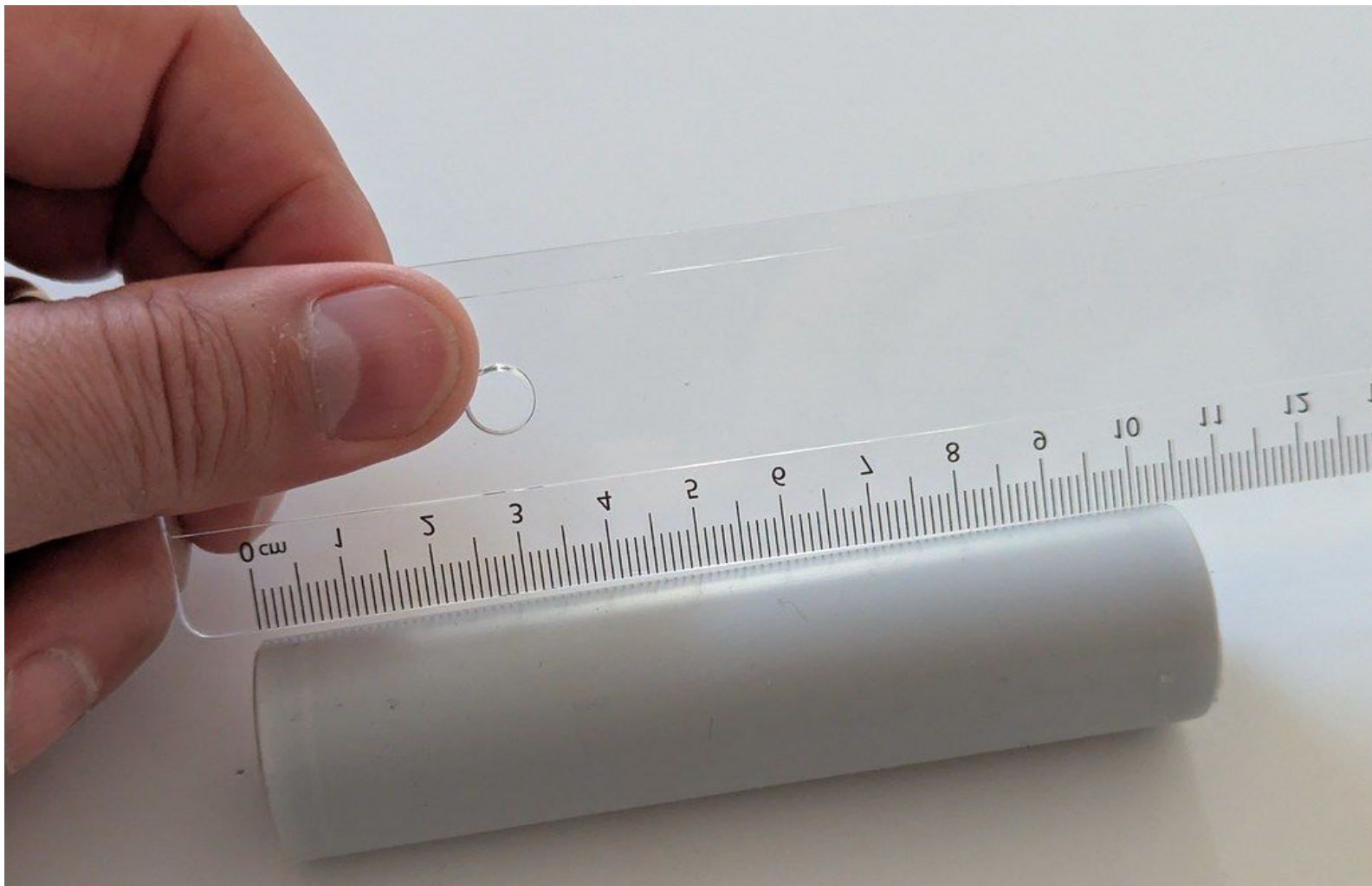
Reparieren im Haushalt mit 3D-gedruckten Teilen

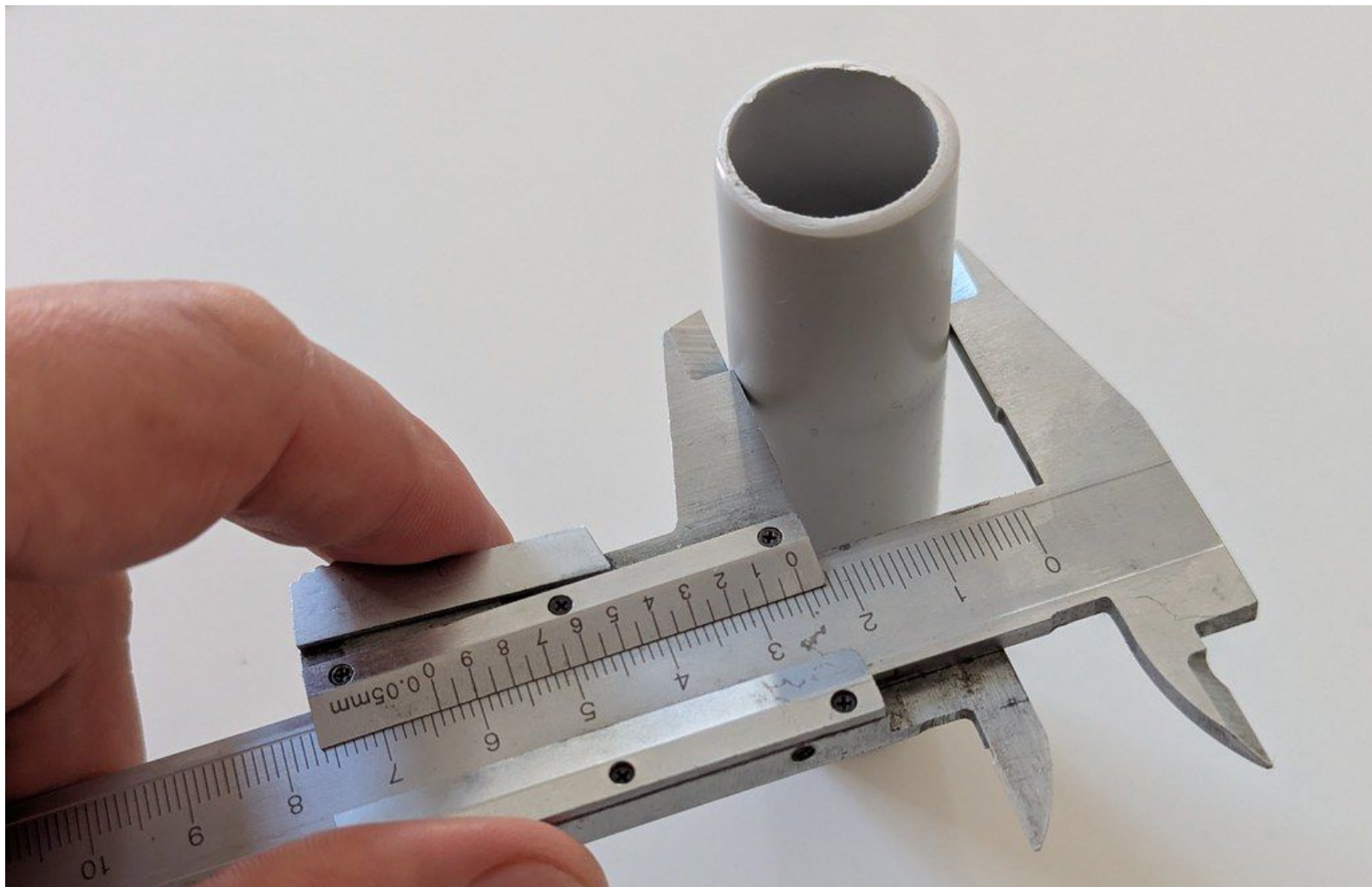
Screenshots = "fair use".

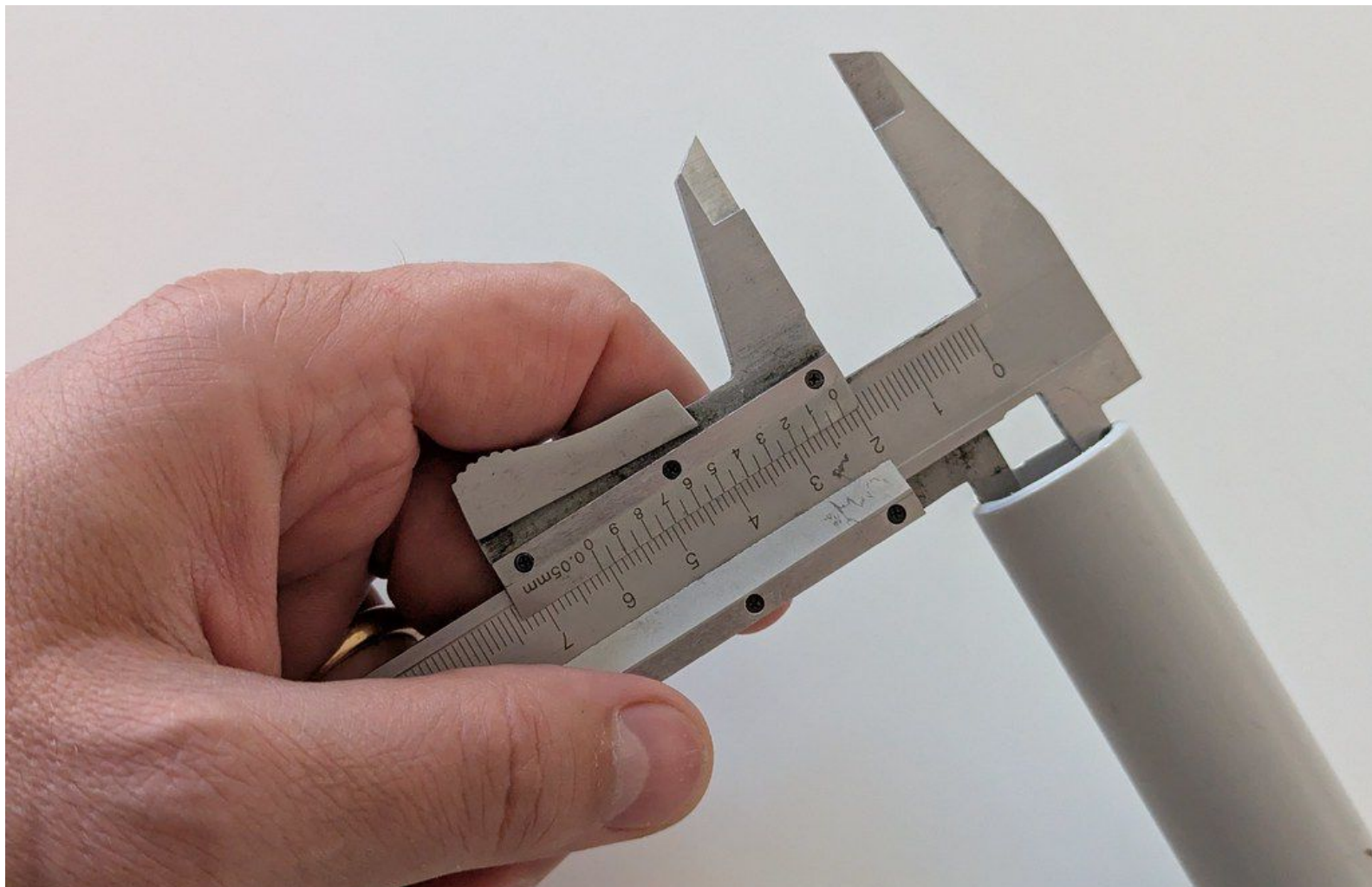
CC BY-SA 4.0, [@tamberg](#)

Messwerkzeug

Massstab und Schieblehre.

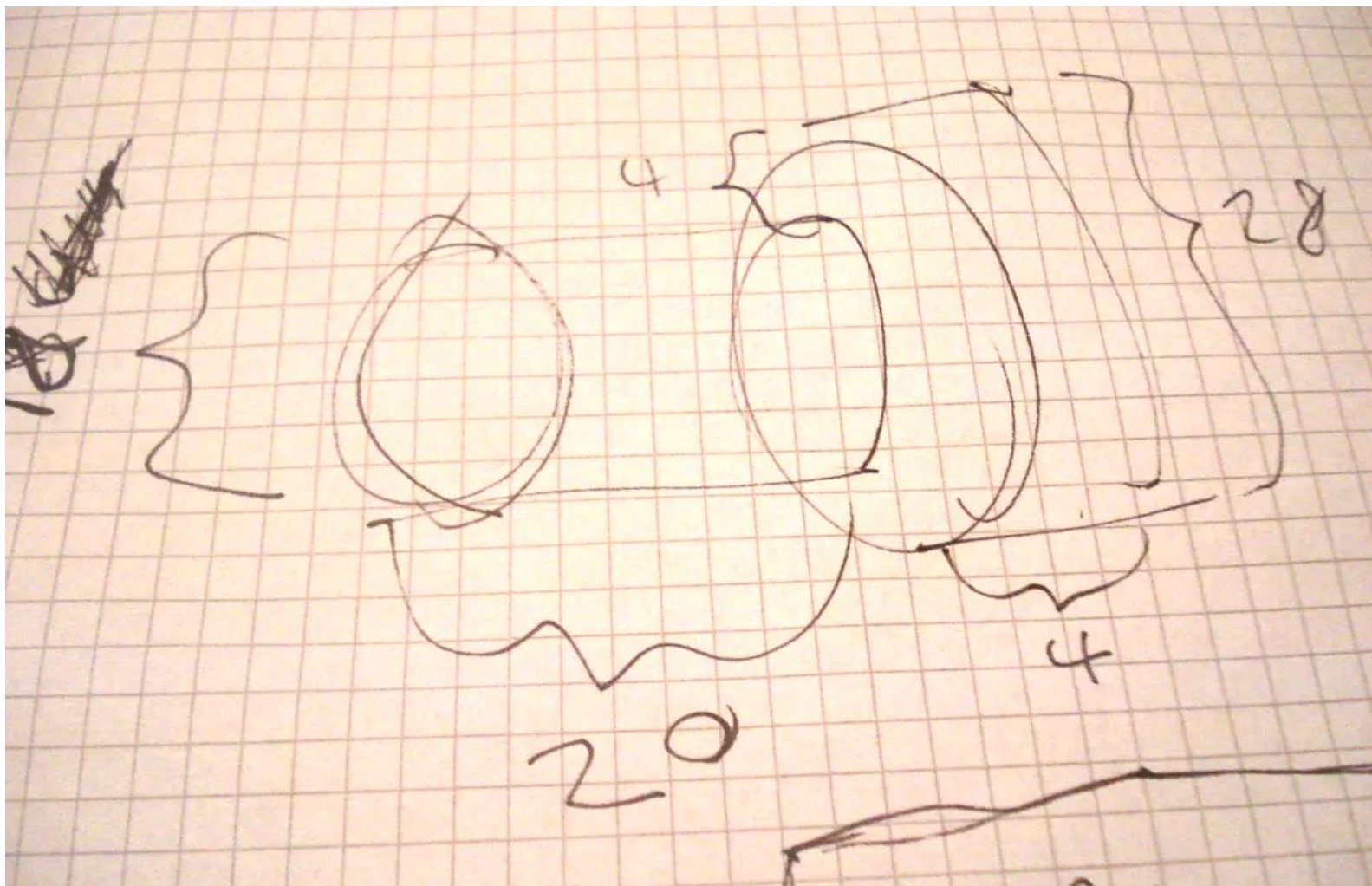






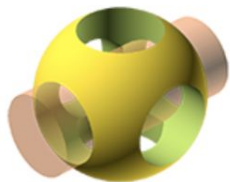
Denkwerkzeug

Notizblock und Stifte.



3D-Konstruktionswerkzeug

OpenSCAD, freie Designsoftware.



OpenSCAD

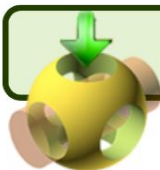
The Programmers Solid 3D CAD Modeller

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OpenSCAD is software for creating solid 3D CAD objects.

It is free software and available for Linux/UNIX, MS Windows and Mac OS X.



Download OpenSCAD

OpenSCAD 2021.01 Mac OS X

[Other OSs and Versions](#)



Tutorial

Get started with OpenSCAD



Libraries

Ready-made building blocks



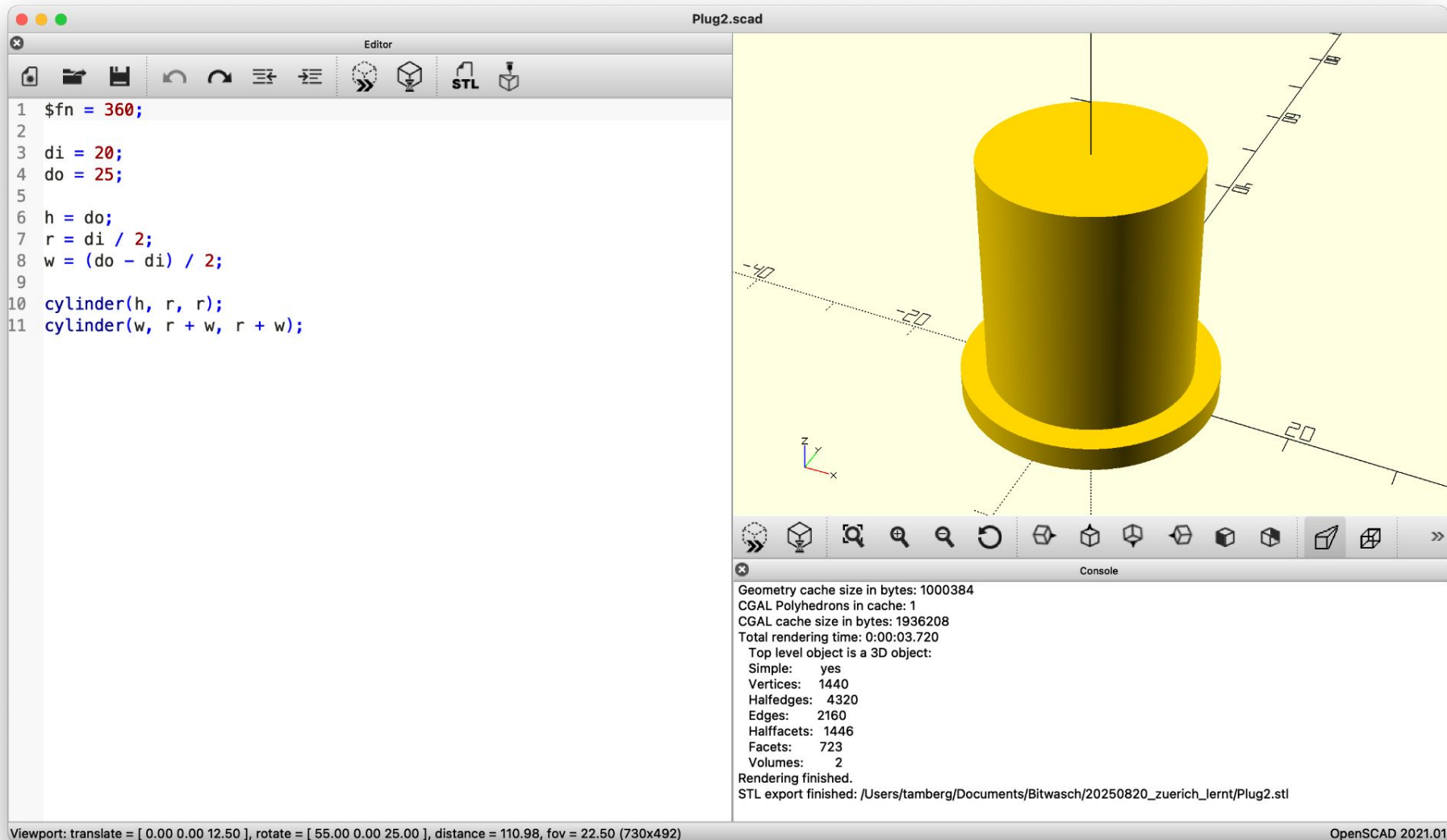
Books

List of books on OpenSCAD



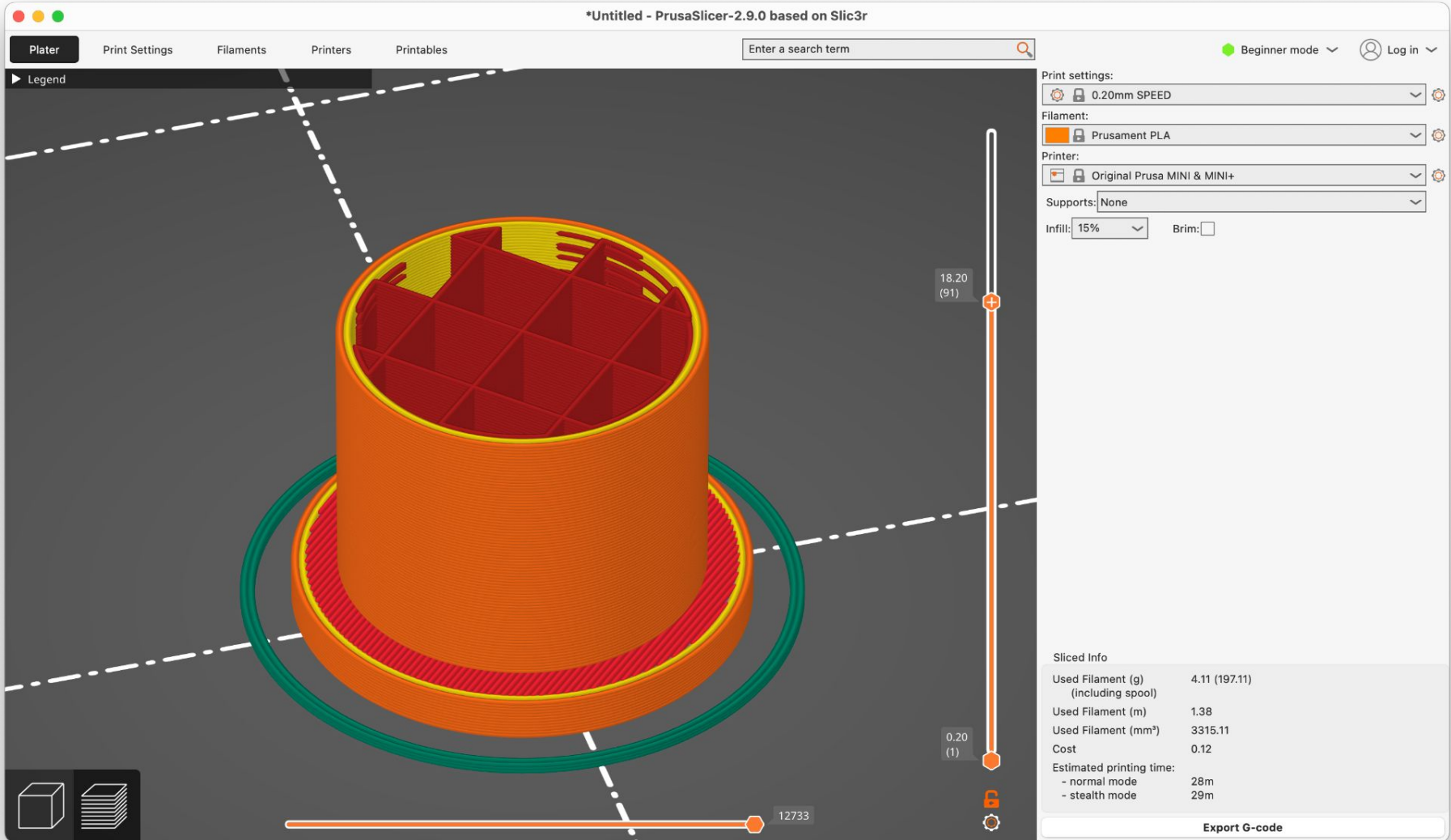
Cheat Sheet

Overview of modules and functions



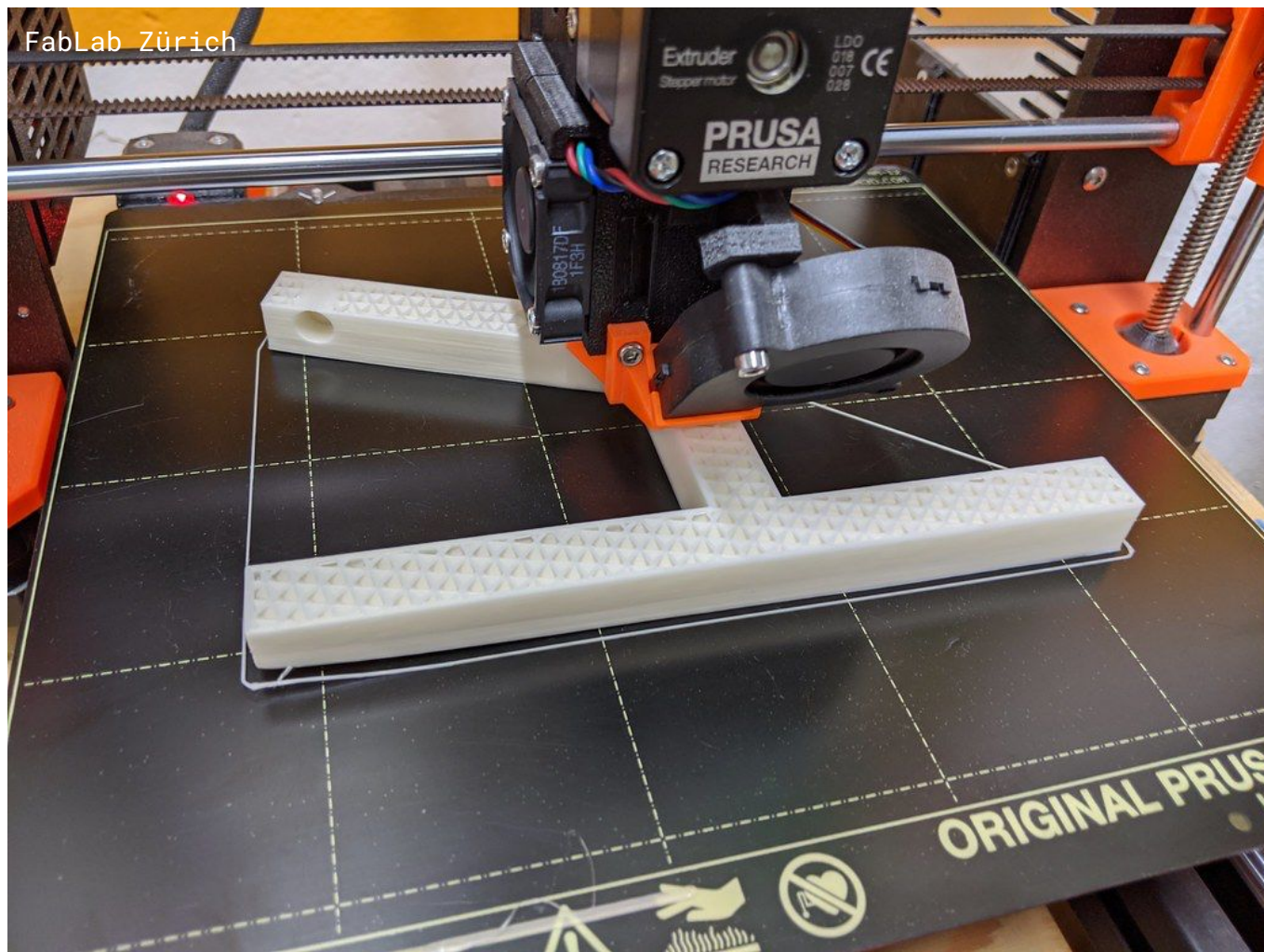
3D-Vorbereitungswerkzeug

PrusaSlicer, freie Druckzerlegesoftware.



3D-Druckmaschine

Prusa MINI+, offene Hardware.



to all of you that bought a
3D-printer but don't know what to print
– we give you IKEA frekvens hacks.

click an image to download ready-to-print stl file.



download collection

Reparaturlebensdauer

Teile, die noch da sind.



Duschvorhangring

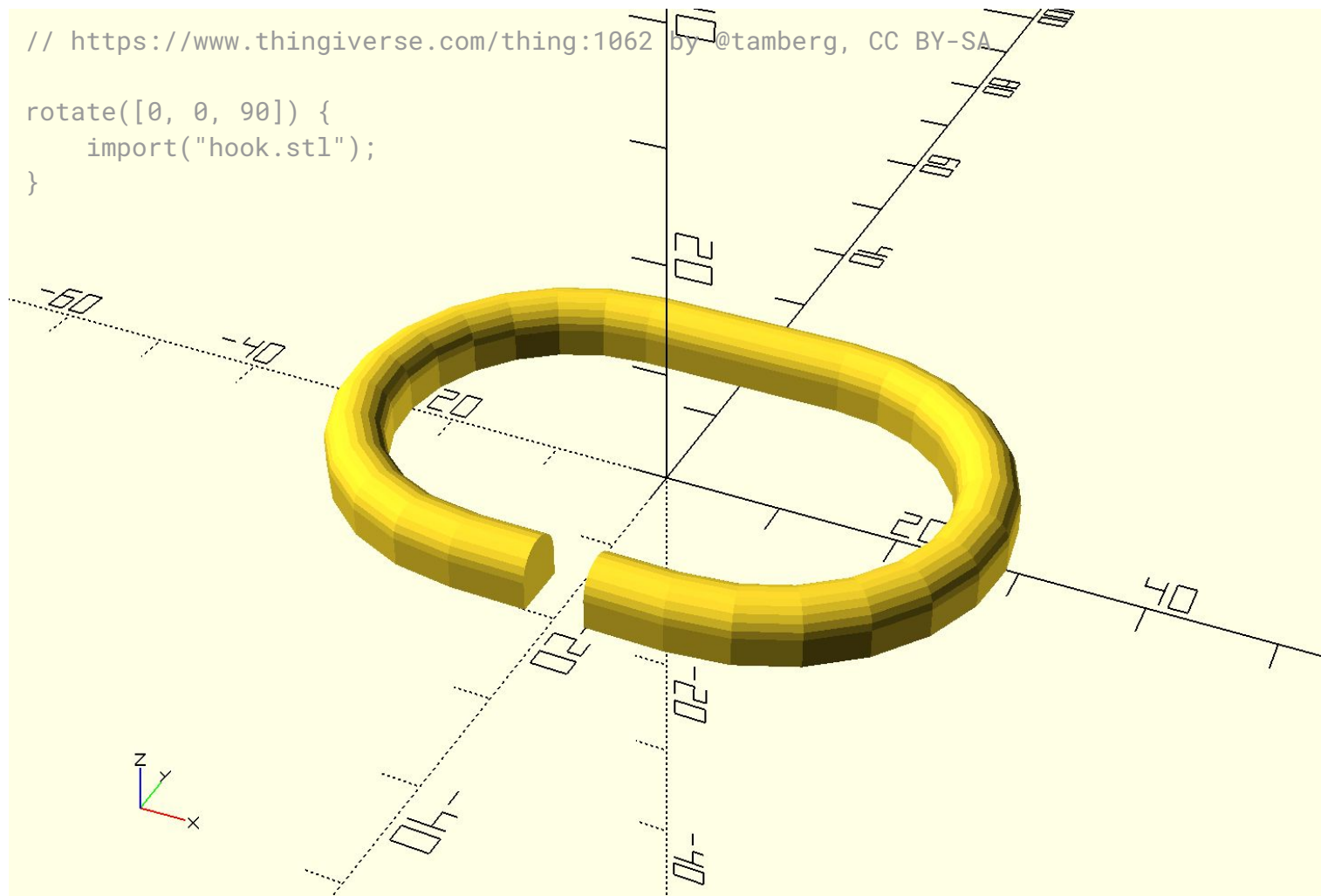
Teile, von denen eins fehlt.

2009



```
// https://www.thingiverse.com/thing:1062 by @tamberg, CC BY-SA
```

```
rotate([0, 0, 90]) {  
    import("hook.stl");  
}
```



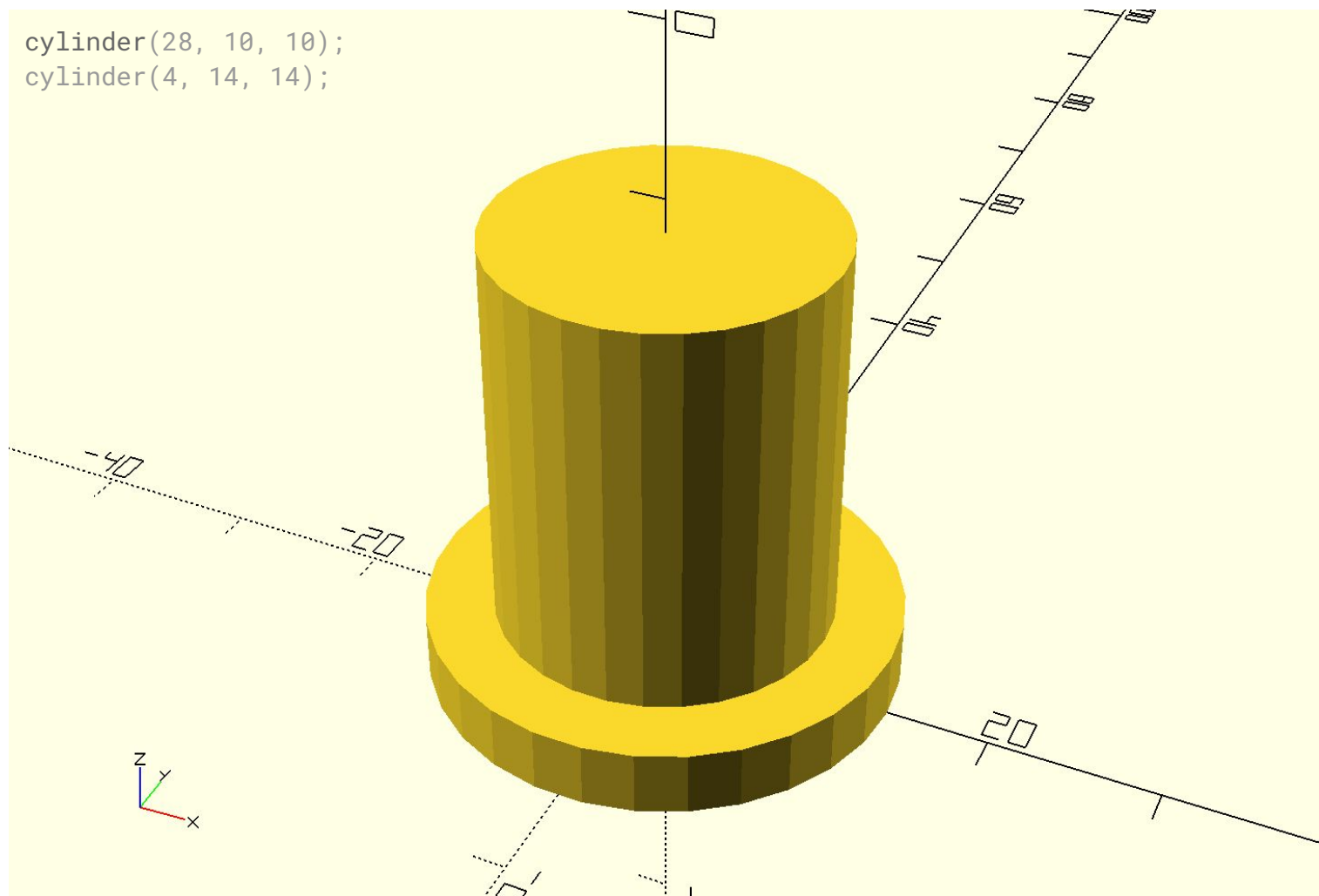
Velolenkerstöpsel

Teile, die verloren gehen.

2010



```
cylinder(28, 10, 10);  
cylinder(4, 14, 14);
```



```
$fn = 360;
```

```
di = 20;
```

```
do = 28;
```

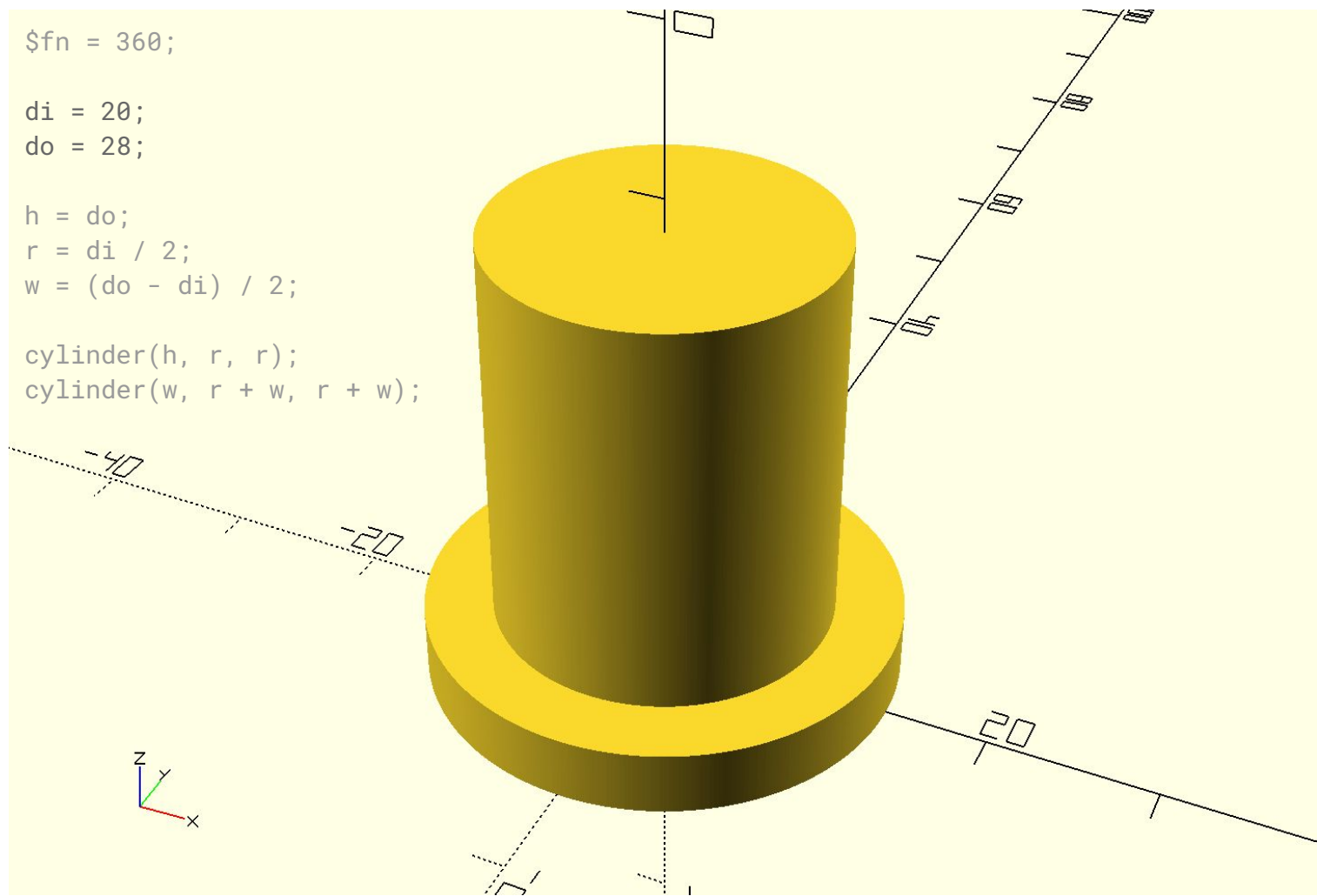
```
h = do;
```

```
r = di / 2;
```

```
w = (do - di) / 2;
```

```
cylinder(h, r, r);
```

```
cylinder(w, r + w, r + w);
```



Kleiderstangenbefestigung

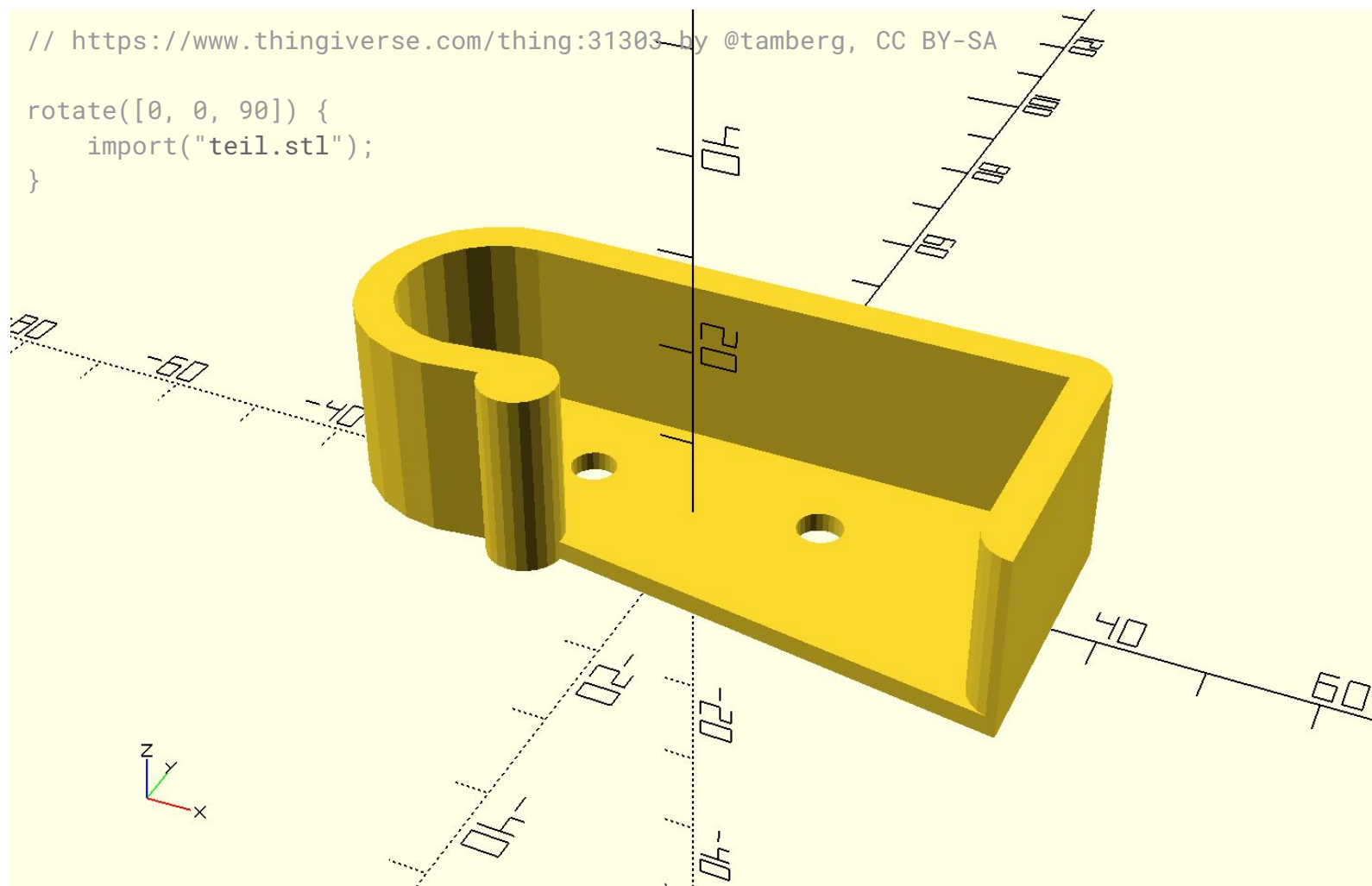
Teile, die was tragen müssen.

2012



```
// https://www.thingiverse.com/thing:31303 by @tamberg, CC BY-SA
```

```
rotate([0, 0, 90]) {  
    import("teil.stl");  
}
```



Spühlmaschinenteil

Teile, ohne die nichts läuft.

2020



// <https://www.thingiverse.com/thing:4209845> by @tamberg, CC BY-SA

```
h0 = 0; h1 = h0 + 2.5; h2 = h1 + 1; h3 = h2 + 2; h4 = h3 + 1.5;  
ri0 = 11.5; ri1 = 14; ri2 = ri1; ri3 = ri0 + (h4 - h3); ri4 = ri0 + (h4 - h3);  
ro0 = 23; ro1 = 17.9; ro2 = 17.9; ro3 = 17.9; ro4 = 17.9;  
d0 = 1.2; d1 = 2;
```

```
rotate_extrude($fn = 360, angle = 180) {  
  union() {  
    translate([ri0, h0]) { square([ro0 - ri0, h1 - h0]); }  
    translate([ri1, h1]) { square([ro1 - ri1, 1]); }  
    translate([ri2, h2]) {  
      polygon(points = [[0, 0], [ro2 - ri2, 0],  
        [ro2 - ri2 - d0, (h3 - h2) / 2],  
        [ro2 - ri2, h3 - h2], [0, 2]]);  
    }  
    translate([ri3, h3]) {  
      square([ro3 - ri3 - (h4 - h3), 2 * (h4 - h3)]);  
      square([ro3 - ri3, (h4 - h3)]);  
    }  
    translate([ri4, h4]) { circle($fn = 360, r = h4 - h3); }  
    translate([ro4 - (h4 - h3), h4]) { circle($fn = 360, r = h4 - h3); }  
  }  
}  
rotate_extrude($fn = 360, angle = 5) {  
  translate([ro0 - d1, h0]) { square([d1, h3 - (d1 / 2)]); }  
  translate([ro0 - d1 + (d1 / 2), h3 - (d1 / 2)]) { circle($fn = 360, r = d1 / 2); }  
}
```



Espressokannengriff

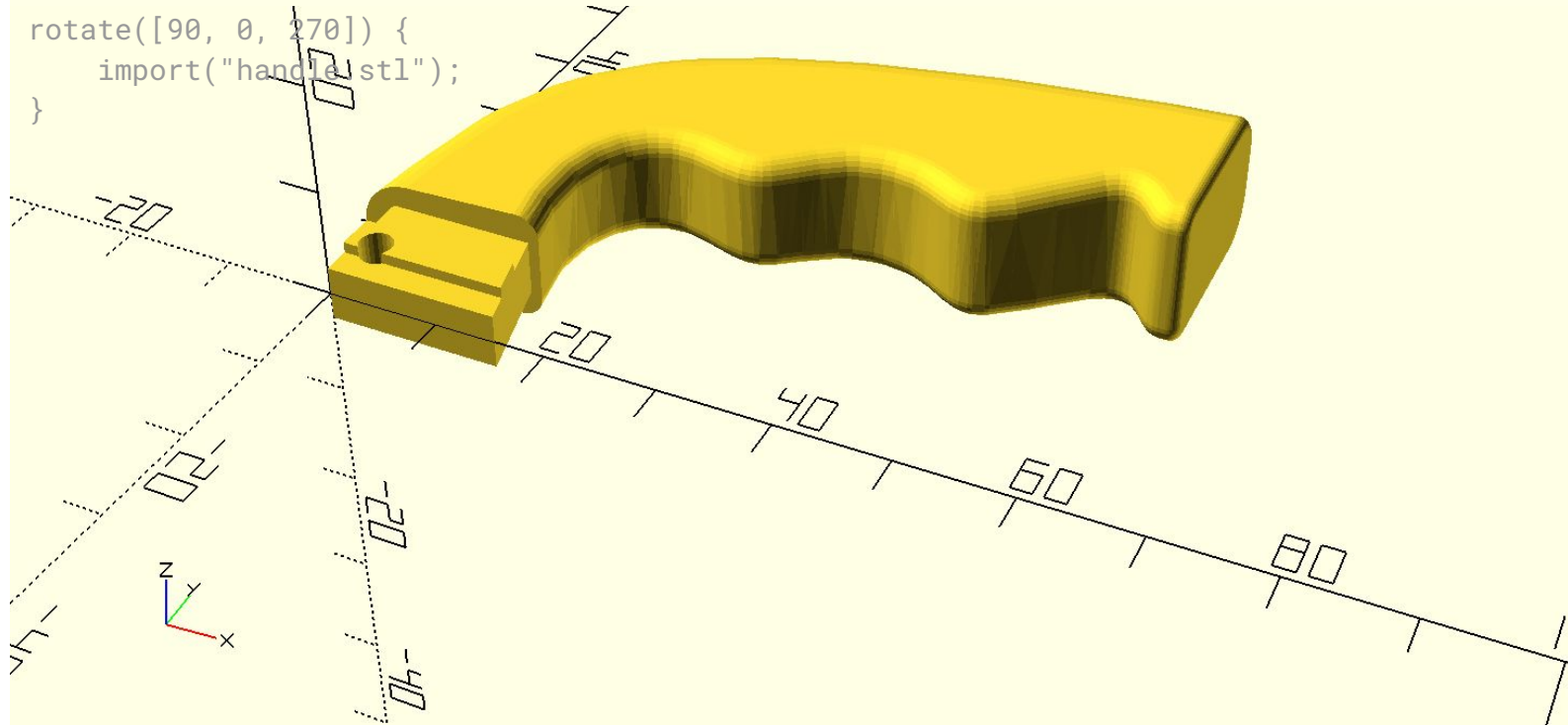
Teile, die nicht schmelzen.

2025



```
// Handle for coffee maker Bialetti Moka Timer by Balrok  
// on https://www.thingiverse.com/thing:3512321  
// This is repaired handle for coffee maker,  
// because i was broke my handle.
```

```
rotate([90, 0, 270]) {  
    import("handle.stl");  
}
```



Deckenlochdeckel

Teile, die in was reinpassen.

2025



```
$fn = 360;
```

```
r = 134/2;
```

```
h = 25;
```

```
d = 1.2;
```

```
difference() {
```

```
  union() {
```

```
    translate([0, 0, h]) {
```

```
      cylinder(2, r, r - 1.2);
```

```
    }
```

```
    cylinder(h, r, r);
```

```
    cylinder(d, r + 6 * d, r + 6 * d);
```

```
  }
```

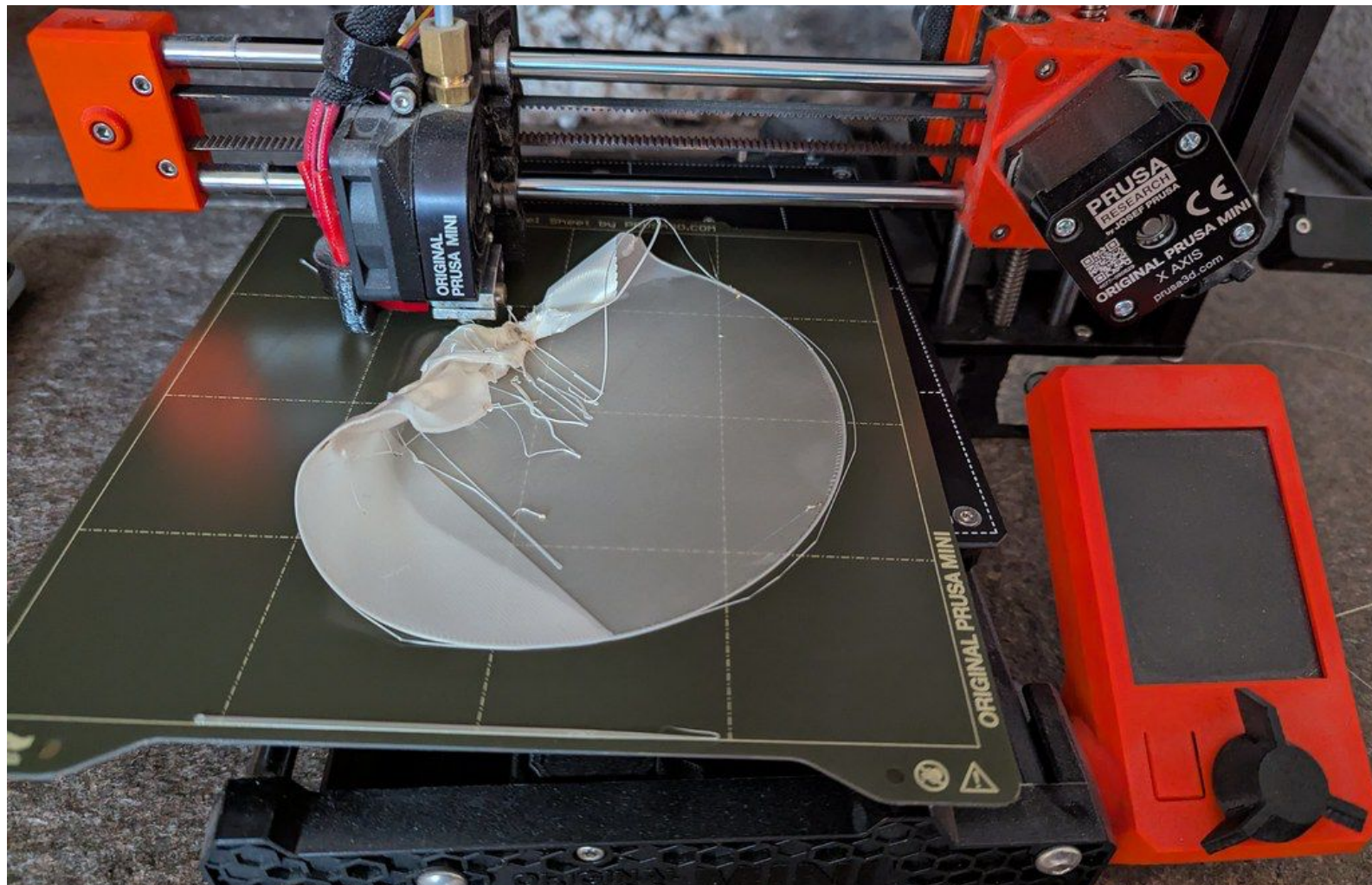
```
  translate([0, 0, d]) {
```

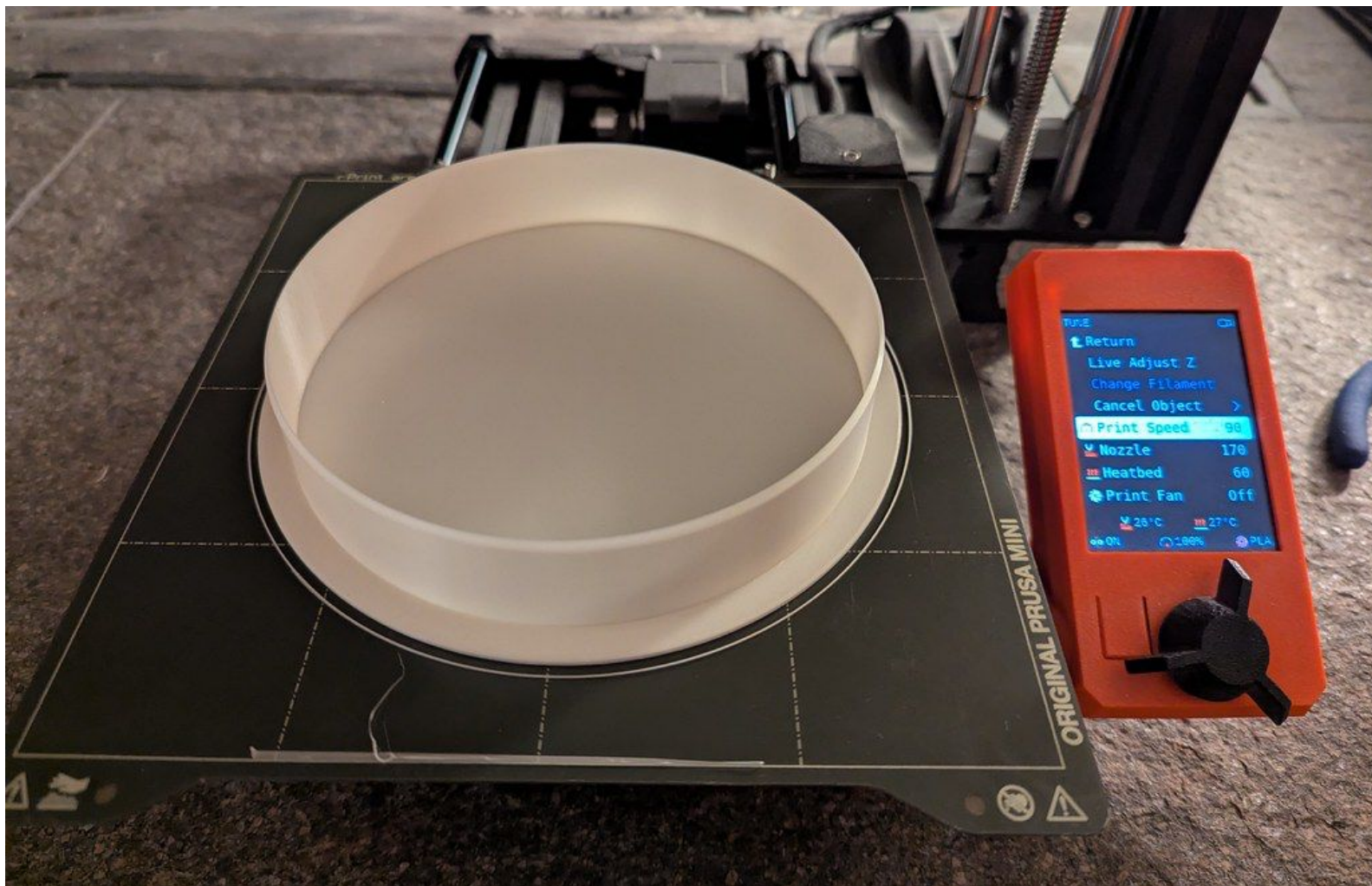
```
    cylinder(h + d, r - d, r - d);
```

```
  }
```

```
}
```







3D-Designbausteine

Teile von komplexeren Teilen.

```
$fn=360;
```

```
ri = 25.2/2;
```

```
d = 3;
```

```
ro = ri + d;
```

```
difference() {
```

```
  hull() {
```

```
    cylinder(2 * ri, ro, ro);
```

```
    translate([-ro, 0, 0]) {
```

```
      rotate([0, 90, 0]) cylinder(2 * ro, ro, ro);
```

```
    }
```

```
  }
```

```
  #translate([0, 0, ro]) {
```

```
    cylinder(2 * ri, ri, ri);
```

```
  }
```

```
  #translate([-1.5 * ro, 0, 0]) {
```

```
    rotate([0, 90, 0]) cylinder(3 * ro, ri, ri);
```

```
  }
```

```
}
```




```
$fn=360;
```

```
module clamp(h, w, r, a) {  
  rotate([0, 0, (360 - a)/2]) {  
    rotate_extrude(angle=a)  
    translate([r, 0, 0])  
    square([w, h]);  
    translate([cos(0) * (r + w/2), sin(0) * (r + w/2), 0]) cylinder(h, w/2, w/2);  
    translate([cos(a) * (r + w/2), sin(a) * (r + w/2), 0]) cylinder(h, w/2, w/2);  
  }  
}
```

```
h = 10;  
w = 3;  
r = 25.2/2;
```

```
#cylinder(3 * (h + w), r, r);  
translate([0, 0, 2 * (h + w)]) clamp(h, w, r, 230);  
translate([0, 0, h + w]) clamp(h, w, r, 250);  
translate([0, 0, 0]) clamp(h, w, r, 270);
```



Selberdrucken

Machen, Lernen, Teilen.

Druckorte

FabLab

Dynamo

Bitwäscherei

Danke

Recreazzz

Druckmaterial

PLA — Geruchlos

PET — Lebensmittelecht

ASA — Temperaturbeständig

Teil von

Zürich lernt